

Introduction

A Concise History of Interactive Digital Narrative

*Hartmut Koenitz, Gabriele Ferri, Mads Haahr,
Diğdem Sezen and Tonguç İbrahim Sezen*

The first part of the book is concerned with the history of Interactive Digital Narrative (IDN). Its intention is to serve as a concise historical account of the development of IDN from its beginnings to recent works by means of representative and influential examples. The identification of distinct historical phases is problematic, given the many parallel developments in the field, for example of hypertext fiction and graphical adventure games. Therefore, we identify trajectories based on form—in the sense of particular visual and physical manifestations. The three evolutionary trajectories identified here—text-based, cinematic/performative and ludic/experimental—represent major facets of IDNs. The trajectories traced here are not meant to be mutually exclusive the same artifact might easily be related to several of them.

Text-based examples constitute the first trajectory, from the very first IDN artefact originating in the 1960s, to Interactive Fiction games in the late 1970s and Hypertext Fiction in the early 1990s, leading to their recent resurrection in the Versu platform in 2013. The second trajectory adds an audio-visual dimension that partly remediates aspects of cinema and performance, and examples in this group range from interactive movies over multi-linear TV shows to experimental art installations. This trajectory also shows the strong interests of *avant-garde* artists in the expressive use of interactive technologies. Finally, the third trajectory encompasses video games and experimental forms that feature complex narrative design. This last trajectory traces examples that benefitted most from recent advances in technology—better visual representation, more advanced AI and increased storage capacity.

1. TEXT-BASED EXAMPLES: FROM *ELIZA* TO INTERACTIVE FICTION AND HYPERFICTION

The beginnings of IDN can be traced back to the computer program *Eliza*, created as an experiment in artificial intelligence (AI) in 1966 by Joseph Weizenbaum. *Eliza* took the form of a program that emulates a Rogerian therapist; it responds to a user's textual input by adopting simple but effective techniques of parsing and pattern matching. For example, *Eliza* could reply

to sentences like “I’m depressed much of the time” with “I am sorry to hear you are depressed” (Weizenbaum, 1966). *Eliza*’s ability to sometimes sustain surprisingly compelling dialogues marks a significant milestone for the use of computers as an expressive narrative medium. *Eliza*’s considerable impact at the time (Murray, 1997, pp. 69–70) was also due to the still largely unchallenged belief in the abilities of AI in 1966, and therefore users interacting with *Eliza* were more disposed to accept the premise of a computer program as an intelligent therapist. With this work, Weizenbaum became the first successful author of an IDN experience by finding the right balance between procedurality (the rules behind *Eliza*’s responses), agency (allowing natural language input) and scenario/role (therapy session and patient) that played into the belief system of his contemporaries (AI as capable of intelligent conversations).

Adventure (Crowther, 1976) is the next seminal piece in the IDN tradition that marks the beginning of the Interactive Fiction (IF) genre. *Adventure* allowed players to explore a fictional world set in a large cave that is rendered to the players in the form of textual descriptions and subject to interaction through the entry of textual commands such as “go north,” “pick up sword” or “fight troll with sword.” The basic mechanics of *Adventure* consisted of problem solving, combining objects, dialogues and spatial exploration. *Adventure*’s considerable success would reach into the commercial realm, as the American company Infocom famously expanded this framework in the following years. Their first product, *Zork I* (Blank and Lebling, 1980), broke new technical ground as programmers applied techniques like object orientation, demons and states to create a dynamic fictional universe (Murray, 1997, p. 78). IF successfully integrated complex narrative with puzzles and riddles that not only control the revelation of the narrative (Montfort, 2003a, p. 3) but also generates narrative through the players’ typing of words.

Michael Joyce’s *Afternoon, A Story*—first shown in 1987 and subsequently published in 1991—constitutes one of the earliest pieces of Hypertext Fiction (HF, sometimes also abbreviated as Hyperfiction), another text-based IDN subgenre that was particularly active until the mid-1990s. Michael Joyce and Jay Bolter, cocreators (with John B. Smith) of the HF authoring tool *Storyspace*, clearly position HF as a new form of highbrow literature in contrast to IF:

Interactive fiction has already existed for some time in the form of computerized adventure games. ... Admittedly the text of the current games is simple-minded, but the method of presentation is not. ... This method of presentation can now be applied to serious fiction.

(Bolter and Joyce, 1987)

Whilst the other examples discussed so far originated within research labs in computer science, HF works from the very beginning were created by authors like Michael Joyce and Douglas Cooper who had already published traditional books before picking up HF. These creators aimed at overcoming the

limitations of the printed book by embracing digital media and turning readers into participants, which Murray terms *interactors* (Murray, 1997). The interactor of HF as envisioned by Bolter and Joyce is no longer the passive consumer of a finished work but instead is given an active role in constructing meaning.

HF relies on the principles of segmentation and linking, as authors produce screen-sized segments, or *lexias*, and connect them with different types of hyperlinks. Interactors traverse the story by selecting links, unveiling new lexias, or returning to the ones already visited. Such repeated visits—called *multivalence* by hypertext theorist Mark Bernstein (2000)—constitute a design strategy specific to HF, where the meaning of particular lexias change upon revisitation, as the interactor gains additional insights. The success of this strategy depends on the complexity and depth of the particular narrative. In Michael Joyce's *Afternoon, A Story* (1991), multivalence is particularly successful, as the interactor slowly gains a better understanding of the unreliable narrator's narrative by traversing more than 500 lexias connected by over 900 links regarding the life-changing event of witnessing a car accident, the protagonist's failure to provide help and his consequent psychosis.

Another design strategy in HF is in the equivalence between content and structure: for example, a fragmented narrative like *Afternoon* is presented in fragmented pieces and the associative connections as links. In Shelly Jackson's *Patchwork Girl* (1995), the protagonist herself is literally patched together from body parts of deceased women. This narrative strategy sets the stage for a fragmented narrative, exploring the main character as well as the lives of the donors.

After years of relative obscurity, Interactive Fiction recently seems poised for a return to the spotlight in the form of *Versu* (2013), a project that originated with Linden Labs, the developer of *Second Life*. *Versu* merged text-based narrative with advanced artificial intelligence methods and expressive graphics. The project aims to create a platform for procedural textual narrative and hopes to attract authors by offering a specific authoring tool and a business model for distribution. The first examples—narratives set in a Jane Austen-inspired Regency era and the Roman Empire, respectively—by renowned interactive fiction writer Emily Short received positive reviews.¹

2. FROM INTERACTIVE CINEMA TO INTERACTIVE PERFORMANCES

Interactive Cinema is an umbrella term for works and experiments combining cinematic experiences and interactivity, dating back to the 1967 experiment *Kinoautomat* created by Radúz Činčera for the Czechoslovakian pavilion at the Montreal World Fair. The movie *One Man And His World* was stopped at several points during the presentation, and the audience was asked to make a decision. Depending on the answer, the projectionist exchanged the lens cap between two synchronised film projectors (see Naimark, 1998).

The *Kinoautomat* therefore required a human intermediary to execute the audience's choices, and direct interaction between an interactor and a cinematic experience was not possible until the late 1970s when MCA/Phillips, Pioneer and RCA introduced the laser disc system which allowed random, direct access to every point in a video via a computer interface. With this technology, the Architecture Machine Group at MIT created the *Aspen Moviemap* (1978), which enabled an interactor to virtually explore the town of Aspen in Colorado, USA by using a touch screen interface to control a running video of a drive through the town. The interactor could click on the facades of houses along the way to access additional material, such as interior shots, historical images, menus of restaurants and video interviews with inhabitants. In the following years, many other applications combining video and interactivity were explored. Of these, *A City in Transition: New Orleans 1983–86* (Davenport, 1987), a multimedia experience providing access to narrative video and other content, stands out as a particularly refined piece. Glorianna Davenport, a pioneer in the area of interactive documentaries, focused her work on a massive urban development effort on a strip of New Orleans Mississippi river embankment in connection with the 1984 world fair.

The terms *Interactive Movie* and *Interactive TV* have also become associated with experiments in interactive films for the cinema and television, respectively. In 1991, Oliver Hirschbiegel created *Mörderische Entscheidung* (Murderous Decision), a crime story broadcast on two TV channels simultaneously, each one presenting the same story from the perspective of a different character and allowing the audience to interact by zapping between the channels with an ordinary remote control. Hirschbiegel experimented with several narrative strategies to adapt his story for interactivity—for example, cueing interactors to switch channels by reducing the amount of information given (Weiberg, 2002), but also making sure that information essential for understanding the story was given on both channels. An empirical study about the experiment (Kirchmann, 1994) suggested that the narrative “worked best when both versions showed the same information from different points of view” (Weiberg, 2002), for example when both main characters were present in the same space and their views were represented similarly. Conversely, the moments in which the representation diverged (for instance, when one of the two characters was depicted as intoxicated) proved more problematic for the audience.

In the following years, the same concept was re-elaborated in the Danish experiment *D-Dag* (Kragh-Jacobsen, Levring, Vinterberg and von Trier, 2000), showing four different narratives on separate channels plus additional channels presenting the directors' commentary, for a total of seven options. The framing narrative for *D-Dag* was a bank robbery on New Year's Eve of the new millennium in which the noise from the celebratory fireworks was used to mask the explosion needed to break into the bank.

Interactive video installation pieces combine video segments with algorithmic rules and a level of interactive control by the audience or a live

performer. Historically, the majority of artists came to this field through a gradual process, often by starting to use computers as control devices for noninteractive work before exploring the potential of user participation. For example, the artist Toni Dove started using computers to synchronise slide shows in her 1990 work *Mesmer: Secret of the Human Frame*. Her first interactive piece *Archeology of a Mother Tongue* (1993) is a virtual reality murder mystery (Dove, n.d.) that combines interactive computer graphics, laserdisc video, and slides with interactive sound (Dove, n.d.). The interactor controls the environment by using a small camera to look around a virtual reality environment and a data glove to touch virtual objects. As an untrained interactor might be overwhelmed by the technology involved, Dove often uses a trained tutor to interact with her pieces (Bonin, 2001). What Dove explores in her art pieces is the sensation of walking around in a movie, of actually being inside of a narrative space (Jennings, 1995) and also the powerful experience of a physical action [that] produces a response in video and audio (Jennings, 1995).

A particularly interesting piece is *Wheel of Life* (1993), jointly directed by Glorianna Davenport and Larry Friedlander. The large-scale installation was created around the idea of representational spaces for the different elements of water, earth, fire and space as symbols for both the circle of life and the evolution of life on Earth and beyond. Each space contained video screens and projectors, a sound system, light installations and interactive objects. What sets *Wheel of Life* apart from other examples is its three-way interaction: the piece augments the usual interaction between a computer program and a human interactor by including a second interactor. Individual spaces were designed for interaction between a *guide* controlling the space on a computer display from the outside and an *explorer* experiencing the space from within:

Together they had to discover how to navigate through a world that responded mysteriously to their actions; the explorer's task was to decipher the rules and narratives governing each area, while the guide sought to help the explorer by using the computer to manipulate the images, lights and sounds in the area.

(Davenport and Friedlander 1995)

Toni Dove's latest work, *Lucid Possessions* (2013), is a contemporary ghost story centred on a programmer whose advanced skills make her a target for being possessed by ghosts. Beyond this narrative frame, the piece explores the state of identity in a dichotomous relationship between the virtual and the real on the backdrop of our ever-increasing presence in the virtual world of social networks. In technical terms, the work combines actors and musicians, robots, custom computer hardware and real-time motion-tracking technology in an on-stage performance. The artist becomes an interactor in the dynamic presentation by means of a gesture-based interface, controlling the presentation of video clips. *Lucid Possessions* is a compelling example of the expressive potential of IDN in the hands of an artist.

3. VIDEO GAME NARRATIVES AND EXPERIMENTAL FORMS

We conclude this overview of the historical evolution of IDN by noting several important examples of narrative video games and experimental forms. Following in the footsteps of the early text-based narrative games, graphic adventure games helped to diffuse and popularise IDN, pioneered by the *King's Quest* series, the first of which appeared in 1984.

The *Monkey Island* series of games (1990–2010) is a paradigmatic example in its combination of narrative and game elements. The game places the interactor in the role of a hapless pirate who has to overcome many difficult challenges to prove himself to the pirate establishment while winning the heart of his love interest, the governess of a pirate municipality. The series featured a rich narrative and became famous for its humour and irony. The flow of the narrative is intertwined with puzzles requiring funny, improbable solutions, such as freeing a prisoner by melting the iron bars of his cell with a very potent drink. Advancement in the narrative becomes the reward for puzzle solving, often in the form of noninteractive cut scenes that follow major accomplishments. The *Monkey Island* series is exemplary for keeping a balance between puzzle-solving and narrative development—establishing a consistent style and setting many canonical conventions still in use today.

Myst (1993) continues the adventure game tradition in terms of spatial exploration and puzzle-solving, but it also introduces a highly atmospheric visual representation seen from a first person perspective. The interactor finds her/himself on an island that contains abandoned buildings and mysterious machinery and is left to explore a highly detailed and evocative world. The game was not only an aesthetic milestone but also a convincing example of embedded narrative (Jenkins, 2004) through narrative-infused encounters. More recently, *Gone Home* (2013) applies the same underlying strategy. The game places the interactor in the role of a student returning from an exchange year abroad, only to find the family home empty and the parents and sibling gone. By exploring the house and its contents—the furniture, notes from the inhabitants, audio cassettes and other personal items, the interactor patches together the narrative of her sister's disappearance and the parent's attempt to resurrect their marriage.

Although not a commercial success, *The Last Express* (Mechner, 1997) is remarkably innovative for its integration of narrative, game and exploration. This game casts the interactor in the role of a passenger investigating a murder aboard the Orient Express from Paris to Constantinople on the eve of World War I. Space and time play a central role in this piece, as many events take place simultaneously and provide a variety of narrative paths. By moving through the train, the interactor assembles a particular narrative composed by the conversations he/she overhears and the events he/she witnesses. The game runs in 6x accelerated real time and presents the player's current location on a map. This use of temporality and location helps to

enhance the player's sense of immersion and precludes exhausting the limited amount of possible narratives easily, as the interactor can only be in one location at any given time. The train's stops in stations provide a natural means to structure the narrative into chapters, which make the amount of possible combinations more manageable by folding back to a shared backstory.

The second half of the 1990s saw an important technical development in the advent of 3D representations in video games. The 3D game engines gave interactors the ability to roam free in the designed spaces, but they also removed a measure of control from the creators, which has important implications for narrative design.

The influential game *Blade Runner* (1997) uses a 3D depiction and is set in the same world of the movie of the same name by Ridley Scott. The interactor is cast in the role of a police officer whose job it is to find and kill replicants, illegal synthetic humans that are so much like their natural counterparts that they are almost impossible to distinguish. The game confronts the interactor with strong moral choices that affect the outcome of the narrative. For example, the protagonist can decide to go over to the outlaw side and fight alongside with the replicants; try to restore his reputation by hunting down synthetic humans; or simply leave the city and the fighting behind. These decisions eventually lead to thirteen different endings, variations of the three main outcomes based on the interactor's earlier choices. *Blade Runner* eclipses many other narrative games in the variety of narrative paths that lead to alternative endings, in contrast to the singular successful completion of *Monkey Island*. A key narrative element that enables enhanced variety and deep engagement with the character is the ability to switch sides, as the police officer may turn into an outlaw and gain an obviously different perspective. In this way, the game invites the interactor to explore moral ambiguities in the *Blade Runner* narrative, for example the corruption of police officers and the ethics behind killing replicants.

Fahrenheit (2005), also known as *Indigo Prophecy* in North America, contains the narrative of ritualistic murders in New York City in an imagined year 2009 and combines a 3D real-time rendered gameworld with cinematic elements in the form of screen montage and transitions. In addition to a well-formed multilinear narrative, *Fahrenheit* is especially relevant for the unusually high degree of narrative control given to the interactor over three different characters in a single game session. This interesting mechanic results in novel narrative experiences, for example when two user-controlled characters work against the third who is also managed by the interactor.

The critically acclaimed *The Walking Dead* (2012) is an adventure game in the setting of the TV series of the same name, which depicts a post-apocalyptic world after a zombie outbreak has befallen the United States. The narrative design requires the interactor to make difficult, morally ambiguous choices, such as which of the other characters to save. These decisions are coupled with a feedback system that succeeds in making the choices meaningful and memorable for the interactor. In tandem with a rich

narrative world, the game creates a compelling IDN experience, which is indicative of the development in the adventure game genre. The focus on narrative feedback is a productive direction for future work.

The Last of Us (2013) pairs the player in the role of a middle-aged man with a 14-year-old girl on a journey through a dark, postapocalyptic world that is full of deadly enemies. The narrative design is carefully crafted so that the interactor builds a connection with the teenage sidekick through many dialogues and a slow change in behaviour, signalling growing trust. This emotional connection helps give the narrative depth and creates an immersive experience to the point that some players felt that the fighting scenes represented a distraction. *The Last of Us* is an outstanding example of a satisfying narrative experience that not only enhances the shooter genre but also works as a stand-alone design.

Finally, we discuss IDN experiments in the form of interactive drama and hybrid forms. This combination of drama and interactivity has been introduced to the digital realm in the late 1980s by the OZ project at Carnegie Mellon University. Influenced by Brenda Laurel's neo-Aristotelian approach to interactive narratives (Laurel, 1986, 1991), research in the OZ group focused on related Artificial Intelligence (AI) techniques and their concrete implementation. Interactive drama was conceptualised as a combination of presentation, virtual characters and a drama manager component to preserve coherence and advance the narrative. Based on this conceptual framework, the OZ group produced two implementations: *Lyotard* (Bates, 1992), a text-based experiment that simulated a house cat, and *Edge of Intention* (Loyall and Bates, 1993), a graphical experiment that contained an animated avatar (called *Woggle*) plus other autonomous agents in different roles. Michael Mateas later continued the research on interactive drama with his collaborator Andrew Stern by working on *Façade* (Mateas and Stern, 2003, 2005a, 2005b). This interactive experience cast the interactor in the uncomfortable position of witnessing a couple on the verge of a break-up, in a "dramatically interesting, real-time 3D virtual world inhabited by computer-controlled characters." (Mateas and Stern 2003) The narrative development in the work is dynamic and leads to various consequences. Stuck between two arguing partners, the interactor of *Façade* faces an implicit choice between helping them to face their issues and stay together or siding with either of the characters and potentially leading to a break-up. *Façade* adopts several strategies to engage the interactor in the unfolding narrative: a finite space (the couple's small apartment), the uncomfortable but familiar situation of a fighting couple, the continuous real-time flow of events and the audible answers of the virtual characters work together to create immersion. *Façade* exemplifies the kaleidoscopic nature of interactive narratives (Murray, 1997), as the system can produce a wide variety of different narrative paths leading to more or less satisfying finales; in the best version, interactors may experience a powerful sense of agency by saving the couple's marriage. Unfortunately, this ending is hard to reach for a variety of reasons, some due to technical limitations but also because of particular design decisions, especially the advancement

in real-time, which affords the interactor very little time to make decisions. Nevertheless, *Façade* remains the most complete interactive drama in the tradition of the OZ project—Mateas and Stern’s piece has received considerable acclaim and was praised as a critical breakthrough. Mateas has, since then, continued his work in *Prom Week* (2012), an IDN piece that recreates the social situations in a high school class in the week leading up to the prom.

As interactive media matures, some authors have consciously begun to cross over conventions, applying foreign design strategies to produce ambiguous artefacts. Adam Cadre’s IF *Photopia* (1998) is a work that presents interleaving narrative strands of the events leading up to a car accident, the exploration of an alien planet and a surreal world in which the interactor can fly. However, this IF presents spatial and textual exploration and emerges as a segmented narrative with hyperlinks substituting standard IF commands and creates an interesting hybrid between IF and HF. Natalie Bookchin’s *The Intruder* (1999) turns a short story by Jorge Luis Borges into an interactive experience by requiring the interactor to play several rudimentary video games in the style of classic titles like *Pong* or *Space Invaders*. Both Cadre’s and Bookchin’s pieces offer a glimpse of possible future design directions that transgress traditional boundaries within Interactive Digital Narrative and are a testament to the vitality of this field for future experiments. A case in point is *Device 6* (2013), a work that continues in the same vein of genre crossover by mixing textual presentation reminiscent of HF with animated audio-visual elements. In this interactive thriller, the screen text is arranged spatially and serves as both narrative manifestation and map. *Save the Date* (2013) pushes the boundaries of narrative on a different level. The premise of the game initially seems straightforward, as the interactor is given a range of options on how to arrange a dinner date; however, the task quickly becomes problematic because the love interest invariably gets killed. In addition, the game changes the epistemological dimension by representing the interactor’s memory in successive sessions. Yet, even with the added knowledge of previous failed attempts, a satisfying narrative ending remains elusive and the interactor ultimately faces a choice between two unsatisfying alternatives—either to give up on the date or to end the game before disaster strikes. In that sense, *Save the Date* presents a considerable challenge to our established sense of narrative.

Interactive Digital Narrative, in its manifold forms, has come a long way since *Eliza* and *Adventure*. Works like *The Walking Dead*, *Gone Home*, but also *Ludic Processions* and *Device 6*, are testimony of an established field. And yet, there are no signs of stagnation on this creative frontier for narrative expressions. Great things are yet to come.

NOTE

1. See for example <http://www.whatmobile.net/2013/03/07/app-review-versu-the-choose-your-own-adventure-app/>, <http://www.148apps.com/reviews/versu-review/> and <http://storycade.com/mobile-blood-laurels/>

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